





Application of: DING et al.

Application No.: 10/603,115

Filed: June 24, 2003

For: DRUG COATING WITH TOPCOAT

### PENDING CLAIMS

51. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic and at least part of the metallic stent portion is covered with a coating for release of a biologically active material, wherein said coating comprises an undercoat comprising a hydrophobic elastomeric material incorporating an amount of biologically active material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

52. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating an amount of biologically active material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

53. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer

material incorporating an amount of biologically active material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

54. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the antibiotic material, and wherein said topcoat is substantially free of an elutable material.

55. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the antibiotic material, and wherein said topcoat is substantially free of an elutable material.

56. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer

material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

57. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic and at least part of the metallic stent portion is covered with a coating for release of a biologically active material, wherein said coating comprises an undercoat comprising a hydrophobic elastomeric material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

58. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

59. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further

comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which controls the release profile of the antibiotic material and provides long term non-thrombogenicity to the stent portion during and after release of the antibiotic material, and wherein said topcoat is substantially free of an elutable material.

60. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating an amount of biologically active material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

61. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating an amount of biologically active material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the biologically active material.

62. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising a hydrophobic elastomeric material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable,

non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

63. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising a hydrophobic elastomeric material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

64. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising a hydrophobic elastomeric material incorporating an amount of biologically active material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

65. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising a hydrophobic elastomeric material incorporating an amount of biologically active material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the biologically active material.

66. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising a hydrophobic elastomeric material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

67. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising a hydrophobic elastomeric material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

68. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate copolymer material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

69. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for

release of a biologically active material, wherein said coating comprises an undercoat comprising an ethylene vinyl acetate material incorporating an amount of biologically active material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

70. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating an amount of biologically active material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

71. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the antibiotic material, and wherein said topcoat is substantially free of an elutable material.

72. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material



incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the antibiotic material, and wherein said topcoat is substantially free of an elutable material.

73. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

74. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

75. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a

topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which controls the release profile of the antibiotic material and provides long term non-thrombogenicity to the stent portion during and after release of the antibiotic material, and wherein said topcoat is substantially free of an elutable material.

76. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating an amount of biologically active material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material which provides long term non-thrombogenicity to the stent portion during and after release of the biologically active material, and wherein said topcoat is substantially free of an elutable material.

77. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is stainless steel covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating an amount of biologically active material therein for timed release therefrom which acts to inhibit smooth muscle cells in said patient, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable, non-thrombogenic polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the biologically active material.

78. A stent having at least a portion which is implantable into the body of a patient, wherein at least a part of the stent portion is metallic covered with a coating for release of a biologically active material, wherein said coating adheringly conforms to the stent structure and comprises an undercoat comprising an ethylene vinyl acetate material incorporating said biologically active material which comprises an amount of an antibiotic material therein for timed release therefrom, and wherein said coating further comprises a topcoat which at least partially covers the undercoat, said topcoat comprising a biostable

polymeric material substantially free of an elutable material, wherein said topcoat controls the release profile of the antibiotic material.

79. The stent of any one of claims 51 to 78, wherein the stent is implantable into a blood vessel of the patient.

80. The stent of any one of claims 51 to 78, wherein the biologically active material inhibits restenosis.

81. A method of treating restenosis comprising implanting the stent of claim 51 into the body of the patient.

82. A method of treating restenosis comprising implanting the stent of claim 52 into the body of the patient.

83. A method of treating restenosis comprising implanting the stent of claim 53 into the body of the patient.

84. A method of treating restenosis comprising implanting the stent of claim 54 into the body of the patient.

85. A method of treating restenosis comprising implanting the stent of claim 55 into the body of the patient.

86. A method of treating restenosis comprising implanting the stent of claim 56 into the body of the patient.

87. A method of treating restenosis comprising implanting the stent of claim 57 into the body of the patient.

88. A method of treating restenosis comprising implanting the stent of claim 58 into the body of the patient.

89. A method of treating restenosis comprising implanting the stent of claim 59 into the body of the patient.

90. A method of treating restenosis comprising implanting the stent of claim 60 into the body of the patient.

91. A method of treating restenosis comprising implanting the stent of claim 61 into the body of the patient.

92. A method of treating restenosis comprising implanting the stent of claim 62 into the body of the patient.

93. A method of treating restenosis comprising implanting the stent of claim 63 into the body of the patient.

94. A method of treating restenosis comprising implanting the stent of claim 64 into the body of the patient.

95. A method of treating restenosis comprising implanting the stent of claim 65 into the body of the patient.

96. A method of treating restenosis comprising implanting the stent of claim 66 into the body of the patient.

97. A method of treating restenosis comprising implanting the stent of claim 67 into the body of the patient.

98. A method of treating restenosis comprising implanting the stent of claim 68 into the body of the patient.

99. A method of treating restenosis comprising implanting the stent of claim 69 into the body of the patient.

100. A method of treating restenosis comprising implanting the stent of claim 70 into the body of the patient.

101. A method of treating restenosis comprising implanting the stent of claim 71 into the body of the patient.

102. A method of treating restenosis comprising implanting the stent of claim 72 into the body of the patient.

103. A method of treating restenosis comprising implanting the stent of claim 73 into the body of the patient.

104. A method of treating restenosis comprising implanting the stent of claim 74 into the body of the patient.

105. A method of treating restenosis comprising implanting the stent of claim 75 into the body of the patient.

106. A method of treating restenosis comprising implanting the stent of claim 76 into the body of the patient.

107. A method of treating restenosis comprising implanting the stent of claim 77 into the body of the patient.

108. A method of treating restenosis comprising implanting the stent of claim 78 into the body of the patient.

109. The method of any one of claims 81 to 108, wherein the stent is implanted into a blood vessel of the patient.

110. The method of any one of claims 81 to 108, wherein the biologically active material inhibits restenosis.